SULFATES

WHAT ARE SULFATES?

Sulfates are mineral salts containing sulfur. Sulfate salts are found in some Wisconsin soils. The decay of plants, animals, and some industrial processes produce these salts. Mines, tanneries, steel mills, pulp mills, and textile plants also release sulfates into the environment.

Understanding the difference between sulfates and sulfites: Sulf*ites* are different sulfur-containing chemicals used as food preservatives. Sulfites are not the same as sulfates. Some people, especially asthmatics, are sensitive to sulfites and can experience severe allergic reactions. Since 1987, food containing more than 10 parts per million (ppm) sulfites and drugs containing sulfites must be labeled.

Industrial waste water, household waste water, runoff from a hazardous waste site or naturally decaying material can put sulfates into waterways rivers, lakes and streams. Wastes that contain sulfates seep through soil and contaminate groundwater.

HOW ARE PEOPLE EXPOSED TO SULFATES?

Drinking/Eating: Most drinking water supplies contain traces of sulfates. One national survey found that sulfates in drinking water supplies range from less than 1 ppm to over 700 ppm. The average level in the survey was 46 ppm.

Sulfate levels in Wisconsin groundwater generally range from 15 to 60 ppm. Sulfates are naturally present, at safe levels, in many foods.

Breathing: Air may contain sulfates in areas of heavy industry. Many sulfate salts can react in air to form dilute acid, which can irritate eyes. People who live near such industrial areas may notice irritating levels of sulfates in air.

Touching: Sulfates do not absorb through skin enough to cause health problems.

DO STANDARDS EXIST FOR REGULATING SULFATES?

Water: The Wisconsin "secondary" standard for sulfates in drinking water is set at 250 ppm. This is called a secondary standard because it's based on taste rather than health effects. Most people can taste or smell sulfates in their water at 300 ppm or higher. Some sensitive people can taste the salts at levels as low as 200 ppm.

Air: The Wisconsin Department of Natural Resources (DNR) limits the amount of sulfur dioxide and sulfuric acid that can be released by industries. The DNR has no air quality standards for sulfates.

WILL EXPOSURE TO SULFATES RESULT IN HARMFUL HEALTH EFFECTS?

The following symptoms can appear a short time after someone drinks water that has over 500 ppm of sulfates:

- diarrhea, intestinal pain (especially in babies)
- dehydration as a result of diarrhea
- slight decrease in normal stomach acidity

Breathing sulfates can cause lung irritation. No long-term human health effects are expected from exposure to sulfates. In animal studies, sulfates did not appear to cause cancer or birth defects.

In general, chemicals affect the same organ systems in all people who are exposed. However, the seriousness of the effects may vary from person to person.

A person's reaction depends on several things, including individual health, heredity, age, previous exposure to chemicals including medicines, and personal habits such as smoking or drinking.

It's also important to consider the length of exposure to the chemical; the amount of chemical exposure; and whether the chemical was inhaled, touched, or eaten.

Seek medical advice if you have any symptoms that you think may be related to chemical exposure.

This fact sheet summarizes information about this chemical and is not a complete listing of all possible effects. It does not refer to work exposure or emergency situations.

FOR MORE INFORMATION

- Poison Control Center, 800-815-8855
- Your local public health agency
- Division of Public Health, BEH, 1 West Wilson Street, Rm. 150, Madison, WI 53701-2659, (608) 266-1120 or Internet: http://www.dhfs.state.wi.us/eh

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